

REMARKS

The Office Action dated December 20, 2007, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-14 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claim 15 has been added. No new matter has been added. Claims 1-15 are respectfully submitted for consideration.

Claims 7, 11, and 14 were objected to because of informalities. Specifically, claim 11 is identical to claim 1, and claim 14 is identical to claim 7. In response, claim 7 has been amended to remove the separate features of the router devices, thereby distinguishing this claim from claim 14. Claim 11 has been amended to more clearly recite means-plus-function terminology, thereby distinguishing this claim from claim 1. Further, the Office Action asserted that in claim 7, page 11, line 12, the word “device” should be changed to “devices.” In response, claim 1 has been amended to recite “devices.” As such, it is respectfully requested that the objection of claims 1, 7, 11, and 14 be withdrawn.

Claims 1-14 were rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent Publication No. 2003/0165144 of Wang (Wang). This rejection is respectfully traversed.

Independent claim 1, upon which claims 2-6 are dependent, recites an apparatus that includes at least two separate dedicated link layers having predetermined dedicated

link capacities and sharing an available capacity of at least one of a real link layer and a physical layer. The apparatus includes at least two virtual routers to which said separate dedicated link layers are configured to at least one of transmit data packets to and receive data packets from said packet data network.

Independent claim 7, upon which claim 8 is dependent, recites a system that includes a plurality of routers, and a first set of routers among a plurality of routers, wherein said first set of routers includes a first set of virtual routers that are connected via a first set of dedicated link layers to form at least a first virtual network. The system includes a second set of routers among said plurality of routers. The second set of routers includes a second set of virtual routers that are connected via a second set of dedicated link layers to form at least a separate second virtual network.

Independent claim 9, upon which claim 10 is dependent, recites a method that includes separating a plurality of link layers into at least a first separated link layer and a second separated link layer. The method includes allocating predetermined portions of an available link layer capacity to said first separated link layer and said second separated link layer. The method includes using said first separated link layers for data transmission in a first virtual network, and said second separated link layer for data transmission in a second virtual network.

Independent claim 11 recites an apparatus that includes at least two separate dedicated link layer means having predetermined dedicated link capacities, and for sharing an available capacity of at least one of a real link layer and a physical layer. The

apparatus includes at least two virtual router means to which said separate dedicated link layers are allocated, for performing at least one of transmitting data packets to and receiving data packets from said packet data network.

Independent claim 12 recites an apparatus that includes separation means for separating a plurality of link layers into at least a first separated link layer and a second separated link layer. The apparatus includes allocation means for allocating predetermined portions of an available link layer capacity to said first separated link layer and said second separated link layer, wherein said allocation means are operably connected to said separation means. The apparatus includes transmission means for using said first separated link layers for data transmission in a first virtual network, and said second separated link layer for data transmission in a second virtual network, wherein said transmission means are operably connected to said separation means.

Independent claim 13 recites an apparatus that includes a first processor configured to separate a plurality of link layers into at least a first separated link layer and a second separated link layer. The apparatus includes a second processor configured to allocate predetermined portions of an available link layer capacity to said first separated link layer and said second separated link layer. The second processor is operably connected to said first processor. The apparatus includes a transmitter configured to use said first separated link layers for data transmission in a first virtual network, and said second separated link layer for data transmission in a second virtual network, wherein said transmitter is operably connected to said first processor.

Independent claim 14, upon which claim 15 is dependent, recites a system that includes a plurality of router devices, wherein each router device of the plurality of router devices comprises at least two separate dedicated link layers having predetermined dedicated link capacities and sharing an available capacity of at least one of a real link layer and a physical layer. The system includes at least two virtual routers to which said separate dedicated link layers are allocated for at least one of transmitting data packets to and receiving data packets from said packet data network. The system includes a first set of router devices among said plurality of router devices, wherein said first set of router devices includes a first set of virtual routers that are connected via a first set of dedicated link layers to form at least a first virtual network. The system includes a second set of router device among said plurality of router devices, wherein said second set of router devices includes a second set of virtual routers that are connected via a second set of dedicated link layers to form at least a separate second virtual network.

As will be discussed below, Wang does not disclose or suggest all of the features of independent claims 1, 7, 9, and 11-14.

Wang generally describes a router system that includes a group of virtual routers that shares at least one resource. The router system further includes a resource allocator that controls access to the at least one resource by the virtual routers. See abstract of Wang.

Specifically, the Office Action refers to Fig. 13 of Wang, where two virtual routers (VR1, VR2) are controlled by a resource allocator (620) so as to share the

bandwidth of a switching fabric and the bandwidth of an interface. As regard the claim wording of the present application, the Office Action is of the opinion that the shared bandwidth and related interface INT 1.1 and INT 1.2 can be interpreted as separate dedicated link layers in a sense of the present application.

However, Applicants respectfully submit that this interpretation is incorrect. As can be gathered from paragraph [0072] on page 5 of Wang, a forwarding table associated with the first virtual router R1 include an entry defining a path from interface INT 1.1 to interface INT 1.2. This, however, means that no separate dedicated link layers are provided. Rather, the bandwidths associated with the two interfaces are merely shared by the two virtual routers and can be used by both routers in exchangeable manner. Then, however, the first feature of claim 1 of the present application is not disclosed in the cited reference.

In general, certain embodiments of the present invention provides, e.g., that two virtual routers use their dedicated link layers to set up virtual links to other virtual routers of separated virtual networks, which cannot be anticipated or rendered obvious by Wang.

In view of the above, Wang fails to disclose or suggest, at least, “at least two virtual routers to which said separate dedicated link layers are configured to at least one of transmit data packets to and receive data packets from said packet data network,” as recited in claim 1 and similarly recited in claims 7, 9, and 11-14. As such, it is respectfully requested that the rejection to claims 1, 7, 9, and 11-14 be withdrawn.

Claims 2-6, 8, 10, and 15 are dependent upon claims 1, 7, 9, and 14. Thus, claims 2-6, 8, 10, and 15 should be allowed for at least their dependence upon claims 1, 7, 9, and 14, and for the specific limitations recited therein.

For the reasons explained above, it is respectfully submitted that each of claims 1-15 recites subject matter that is neither disclosed nor suggested in the cited art. Also, it is respectfully submitted that the subject matter is more than sufficient to render the claimed invention unobvious to a person of ordinary skill in the art. It is, therefore, respectfully requested that all of claims 1-15 be allowed, and that this application be passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned agent at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time
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